REMARKS

Claims 7-18 are currently pending in the application.

Reconsideration of the present application and allowance of the pending claims as amended is respectfully requested in view of the following remarks.

Amendments

Claims 7 and 13 have been amended to clarify the scope of the claims by reciting that the plurality of catalytic partial oxidation reactors are each offset from another "along a longitudinal direction of the shell at a plurality of distances, wherein each of the plurality of distances is greater than the preceding distance along the longitudinal direction of the shell" and that feeding a feed gas mixture to the plurality of catalytic partial oxidation reactors and then passing a heat exchange fluid past the plurality of catalytic partial oxidation reactors prevents heat spots in the shell. Support for this amendment is found in the specification at least at Page 7, lines 16-28.

Non-obviousness

The Final Office Action has rejected claims 7-18 under 35 U.S.C. 103(a) as obvious over U.S. Patent No. 6,221,280 to Anumakonda et al. (hereinafter "Anumakonda") in view of U.S. Patent Publication No. 2002/0041986 to Wojtowicz et al. (hereinafter "Wojtowicz"), in further view of U.S. Patent No. 4,331,451 to Isogaya et al. (hereinafter "Isogaya"), in further view of U.S. Patent No. 6,602,317 to Metius et al. (hereinafter "Metius"), and in further view of U.S. Patent Publication No. 2002/0114747 to Marchand et al. (hereinafter "Marchand"). The rejection is respectfully traversed as applied to the claims as amended in view of the following remarks.

Applicants' Claims

Claim 7, from which claims 8-12 depend, describes a method for catalytic partial oxidation of hydrocarbon fuel comprising feeding a feed gas into plurality of catalytic partial oxidation reactors disposed in a shell parallel to and spaced from one another such that each is offset from another *along a longitudinal direction of the shell at a plurality of distances, wherein each of the plurality of distances is greater than the preceding distance along the longitudinal direction of the shell*, reacting the feed gas to convert it to an exit gas mixture of hydrogen and carbon monoxide, and passing a heat exchange fluid past the catalytic partial oxidation reactors with the heat exchange fluid flowing in the same direction of reactant flow in the reactors such that *heat spots in the shell are prevented* when heat from partial oxidation in the reactors transfers to the heat exchange fluid. Claim 13, from which claims 14-18 depend, describes a method for producing electric power which comprises steps similar to the steps of claim 7 and additionally comprises directing the exit gas to a solid oxide fuel cell system. By having the plurality of catalytic partial oxidation reactors disposed in a *shell parallel to and spaced from one another such that each is offset from another along a longitudinal direction of the shell at a plurality of distances, wherein each of the plurality of distances is greater than the preceding distance along the longitudinal direction of the shell*, heat produced by the catalytic oxidation reactions is distributed along the shell for more efficient heat transfer and heat spots and excessive heat are prevented within the shell.

The Cited References

Anumakonda discloses an apparatus for catalytic partial oxidation of hydrocarbons.

Wojtowicz discloses a method for producing a hydrogen-rich gas from a hydrocarbonaceous material by (1) pyrolysis of the hydrocarbonaceous material to produce carbon-rich residue and hydrogen gas and (2) combusting a portion of the carbon-rich residue.

Isogaya discloses a process for catalytic gasification of heavy distillates, where the inlet temperature must be higher than 500°C.

Marchand discloses a steam reforming system comprising a steam reformer which converts a fuel into a reformate stream to be fed into a shift reactor. The shift reactor can be integrated with an absorbent bed to form an integrated reactor. Heat transfer passages extend through the reactor bed so that heat may be transferred from the shift reactor and the absorbent bed to a coolant. The coolant inlet 730 is proximate the reformer outlet 726 and the coolant outlet 732 is proximate the reformate inlet 706. Thus, the coolant travels in a direction opposite the direction of the reformate flow. Paragraphs [0156]-[0163].

No Prima Facie Obviousness

Applicants respectfully submit that Anumakonda, Wojtowicz, Isogaya, Metius, and Marchand do not establish a *prima facie* case of obviousness against claims 7 and 13 of this application because none of the prior art references, alone or in combination, teach or suggest all of the claim limitations. Anumakonda, Wojtowicz, Isogaya, Metius, and Marchand, alone or in combination, do not disclose a plurality of catalytic partial oxidation reactors disposed in a shell *parallel to and spaced from one another such that each is offset from another along a longitudinal direction of the shell at a plurality of distances, with each of the plurality of*

distances being greater than the preceding distance along the longitudinal direction of the shell. Thus, Anumakonda, Wojtowicz, Isogaya, Metius, and Marchand, alone or in combination, do not disclose such a technical solution of preventing heat spots and excessive heat within a shell containing a plurality of catalytic partial oxidation reactors.

Furthermore, Isogaya teaches away from passing a heat exchange fluid past a plurality of catalytic partial oxidation reactors parallel to and spaced from one another such that each is offset from another along a longitudinal direction of the shell at a plurality of distances, with each of the plurality of distances being greater than the preceding distance along the longitudinal direction of the shell in the same direction of reactant flow, which keeps the feed gas mixture in the precatalyst zone cool and prevents heat spots. In particular, Isogaya teaches that the inlet should be maintained at a high temperate to prevent carbon deposition. Likewise, Marchand teaches away from passing a heat exchange fluid past a plurality of catalytic partial oxidation reactors in the same direction of reactant flow because Marchand discloses cooling the downstream portion of the reactor bed with a coolant flowing in the direction opposite the reactant flow so that a higher temperature results in the upstream portion of the bed. A prior art reference that teaches away from the claimed invention is a significant factor to be considered in determining obviousness and does not establish a prima facie case of obviousness. M.P.E.P § 2145; M.P.E.P § 2143; *In re Fine*, 873 F.2d 1071, 5 USPQ 2d 1596 (Fed. Cir. 1988).

Therefore, a *prima facie* case of obviousness has <u>not</u> been established and the Applicants claims are novel and nonobvious.

In view of the present response to the Final Office Action, Applicant respectfully requests that a timely Notice of Allowance be issued in this case. If there are any issues which can be resolved by a telephone conference or an examiner's amendment, the Examiner is invited to telephone the attorney at (404) 853-8036.

Respectfully submitted,

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